# The Preservice Teacher Self-Efficacy for Writing Inventory (PTSWI): A Tool for Measuring Beliefs About Writing

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## Abstract

Teachers are often underprepared to teach writing, which can negatively impact the performance and attitudes of their students. In teacher preparation programs, one goal should be to specifically develop future teachers of writing. Focusing on self-efficacy beliefs, increasing preservice teachers' confidence and preparedness for teaching writing could yield positive impacts on classroom writing instructional practices. Currently, tools to quantitatively measure self-efficacy for writing and writing instruction in preservice teachers are sparse, thus limiting teacher educators' ability to understand the efficacy of writing instruction. Therefore, the purpose of the present study is to gather evidence of score validity and reliability of a newly developed, theoretically-grounded survey for measuring preservice teacher self-efficacy for writing and writing instruction. The Preservice Teacher Self-Efficacy for Writing Inventory (PTSWI) provides a pragmatic tool designed for use by teacher educators. Results indicate that the PTSWI produces valid and reliable scores that are aligned with current theories from writing research and psychology.

**Keywords:** writing, writing instruction, self-efficacy, preservice teachers

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### 1. Introduction

Perhaps as a response to students' continued underperformance in writing (e.g., National Center for Educational Statistics, 2012), published research examining writing and writing instruction has increased drastically in recent years. For years, writing researchers have described writing as a neglected part of both research and the school curriculum (James et al., 2017; National Commission on Writing, 2003). However, a search of the Social Sciences Citation Index (SSCI) reveals that for the past twenty years (January 2000 – January 2021), 20,094 articles were published in the field of writing research, as compared to 18,228 articles published in the area of reading research, both within educational research. Most notably, 2015 saw a near doubling in the number of articles focused on writing education with that trend continuing into the current year. One troubling finding from this recent work is that teachers do not feel adequately prepared to teach writing (Cutler & Graham, 2008; Karaca & Uysal, 2021).

The fact that teachers feel under-prepared to teach writing is particularly problematic taken in conjunction with the established connection between teacher beliefs for writing and student achievement in writing: students of teachers with high efficacy (or confidence in their abilities to teach writing) spend more time writing each week than students of teachers with low efficacy for writing (Tschannen-Moran & Johnson, 2011). Additionally, high-efficacy teachers teach writing processes, grammar, and usage skills more often (Graham, Harris, Fink, & MacArthur, 2001). Finally, teachers who demonstrate a high sense of efficacy are more likely to diversify their

instructional strategies, utilize multiple genres of text, and engage students in various grouping methods to improve student achievement (Tschannen-Moran & Johnson, 2011). These findings suggest that teacher education programs – the programs tasked with preparing future teachers – must focus on developing teachers' self-efficacy for writing in order to develop effective writing teachers. Only by preparing teachers who are confident in writing instruction and engage in writing practice in the classroom can the field hope to improve K-12 students' writing performance. This is to not say that self-efficacy for writing alone prepares teachers to instruct writing, as writing skills and pedagogical content knowledge certainly contribute, however, the focus of this work is on self-efficacy.

Acknowledging that we can only study phenomena that we can measure, few tools exist that specifically measure preservice teachers' self-efficacy for writing (Bruning, Dempsey, Kauffman, McKim, & Zumbrunn, 2013; Graham et al., 2001) or writing instruction (Graham, Harris, MacArthur, & Fink, 2002). Instead, much of the writing research focuses on inservice teachers' writing apprehension (Daly & Miller, 1975), self-regulation efficacy (Zimmerman & Badura, 1994) or strategies (Harris, Graham, & Mason, 2006). While these tools are helpful in understanding many aspects of writing instruction, they are not created to measure the beliefs of preservice teachers. Moreover, research focusing specifically on preservice teachers is largely qualitative, limiting the generalizability across different groups of future teachers (Zimmerman, Morgan, & Kidder-Brown, 2014).

To extend the measurement work regarding efficacy and writing to our target population of preservice teachers, we used previously published research as a starting point (Cutler & Graham, 2008; Daly & Miller, 1975; Graham et al., 2001; Graham et al., 2002; Zimmerman & Bandura, 1994), to create the Preservice Teacher Self-Efficacy for Writing Inventory (PTSWI).

This tool may allow researchers to better understand the beliefs of future teachers and identify strategies to increase teacher efficacy for writing instruction. Four sub-sections comprise the measure to understand three factors of preservice teacher self-efficacy, which we will describe in later sections*:* (F1) preservice teacher self-efficacy for writing; (F2) preservice teacher self-efficacy for teaching writing elements; and (F3) preservice teacher self-efficacy for writing instruction.

The purpose of the present study is to explore evidence for validity and reliability for the PTSWI. To accomplish these goals, we used the *Standards for Educational and Psychological Testing* (2014) to engage in a robust validation program to provide both *substantive* (i.e., theoretical) and *structural* (i.e., statistical) evidence for the validity of this measure (Benson, 1998). In the following sections, we outline the substantive evidence for the measure, which aligns to *Standard 4.0* (see Table 1), indicating that the instrument is designed using prior research and theory on the topic.

## 2. Empirical and Theoretical Model for Self-Efficacy for Writing and Teaching Writing

According to Benson (1998), providing *substantive* evidence of measurement validity requires examining existing theory and grounding work with that body of literature. The present study is grounded in a rich research tradition informed by sociocultural theory, sociocognitive theory with an emphasis in self-efficacy, and empirical research on the intersections of writing, writing instruction, and self-efficacy.

### 2.1 Sociocultural Theory (Situated Judgment)

In the 1990s, researchers began considering social, historical, and political contexts of writing, which were missing from previous theoretical models that privileged cognitive processing only (Behizadeh & Engelhard, 2011). Sociocultural theory emerged from these

research foci, as well as influences from psychology, anthropology, sociology, linguistics, and semiotics, the study of signs and symbols (Prior, 2006). Currently, sociocultural theory is the dominant framework for writing research, viewing writing as a mode of social action and not simply a means of communication (Prior, 2006). From this perspective, an activity such as writing happens in specific situations and is governed by the rules of a culture or society but can be individualized to the specific individual. Writing is a social construct that is culturally-based and individualized. The sociocultural theory of writing has been influenced by Vygotsky's (1978) social constructivist approaches as well as Leont'ev's (1981) activity theory. Sociocultural theory is a union of these two theories, focusing on the social and concrete aspects of learning that Vygostky championed while incorporating the basic premises that collaboration is part of any activity.

The basic idea of the sociocultural theory of writing is that writing extends beyond the present moment and context to include prior knowledge, understanding of language, multiple genres, motivation, and influences of technology (Ekholm et al., 2015; MacArthur et al., 2016). Writing is viewed as a series of short- and long-term production, representation, reception, and distribution (Graham et al., 2012; Graham et al., 2016). The same core beliefs were present in the cognitive process theory of writing (Flower & Hayes, 1981; Hayes, 2006), but in sociocultural theory they originate from an individual's unique experiences within society and civilization. Writing occurs when an individual creates a long-term goal then uses short-term goals to engage with, understand, and produce text (Author, 2017).

Sociocultural theory offers more insights into the social and collaborative aspects of writing situated within the complexities of schools. The current research study focuses heavily on preservice teachers learning from those in their teacher preparation programs – either through

coursework, modeling from instructors, or collaborations with peers – which likely influence their self-beliefs about writing (Pajares, 2003; Zimmerman et al., 2014). Additionally, sociocultural theory accounts for essential aspects of motivation that cognitive theories do not fully address, particularly social variables, and influences of culture and society.

## 2.2 Sociocognitive Theory (Self-Efficacy)

Writing is complex, and in fact, the more researchers explore students in the active process of writing, additional complexities have emerged between cognition and writing production. Sociocognitive theory (Bandura, 1977, 1986) began focusing on writing as researchers increasingly sought to capture the thought processes underlying the composition writing of students. As the research on self-efficacy for writing has developed, scholars have recognized that students' beliefs about their own writing processes and competence for writing are instrumental to their ultimate success as writers (Pajares, 2003; Pajares & Valiante, 2006).

The present research focuses on writing self-efficacy as a central construct to the writing development of preservice teachers. When preservice teachers have effective models of writing and writing instruction, provided by their teacher educators, they become more competent and efficacious teachers themselves. This idea is supported by the work of Bandura, also stated by Pajares and Valiant (2006) as "if there is one finding that is incontrovertible in education…it is that children learn from the actions of models" (p. 167). Sociocognitive theory is foundational for understanding the linkages between preservice teachers' self-efficacy for writing, teacher educators' modeling of effective writing instruction, and the success of K-12 students in writing.

According to Bandura (1997), self-efficacy beliefs may provide support for writing motivation and success as a future writing teacher. Self-efficacy is a person's belief that they can accomplish a task successfully and persevere even if faced with a challenge (Bandura, 1986).

Pajares (2003) focused Bandura's self-efficacy work specifically on writing and both suggest that self-efficacy beliefs originate from four sources: (a) interpreting the results of previous performance, (b) models/observing others, (c) social persuasions, and (d) emotional states about writing. When considering preservice teachers, these four sources would include analyzing their past experiences as writers, learning from their teacher educators and peers, collaborating and orienting to social perspectives on writing instruction, and examining their own core beliefs about writing.

Research indicates that humans are more likely to select tasks in which they have high self-efficacy and avoid tasks in which they have low self-efficacy (Bandura, 2001; Pajares, 2003; Pajares & Valiante, 2006). Self-efficacy beliefs can be shifted through support, practice, and an examination of the four sources outlined previously. For educators, self-efficacy is critical to the success of students as well as the influential in the effectiveness of instruction the teacher provides. According to Author and colleagues (2019), both self-efficacy and self-concept are essential for shifting beliefs about writing. Preservice teachers who feel confident in their abilities to teach, in general, and feel competent in their academic abilities, will express higher levels of self-efficacy for both writing and writing instruction.

## 2.3 Empirical Research on the Intersections of Writing, Writing Instruction, & Self-Efficacy

The teaching profession continues to see a connection between self-efficacy beliefs and positive teacher attitudes about teaching (Wang, Hall, & Rahimi, 2015), particularly among teachers who remain in the profession longer than five years (Hargreaves & Fullan, 2012). As self-efficacy is a domain-specific construct (Bandura, 1977), it is critical that teacher education programs focus on developing self-efficacy beliefs in multiple areas. We also have clearly

established that writing instruction is important for students, both for the goal of communication but also when students improve their writing skills, they show improvement in all other academic domains (National Commission on Writing, 2003). Consequently, teacher preparation programs need to focus on building the self-efficacy beliefs of preservice teachers specifically for writing and writing instruction.

Educators and scholars know that teachers' belief structures are highly influenced by both their former K-12 teachers and teacher preparation programs (Graham, Harris, Fink, & MacArthur, 2001; Graham, Harris, MacArthur, & Fink, 2002). Many current teachers report feeling unprepared to teach writing (Cutler & Graham, 2008), which may exacerbate any negative beliefs about writing and negatively influence any instructional limitations. Attending to these belief structures and influences is especially important when considering writing instruction, as much research has indicated that writing does not occur often enough in classrooms (Coker et al., 2016; Drew, Olinghouse, Faggella-Luby, & Welsh, 2017).

However, to date, research on writing self-efficacy has focused nearly exclusively on inservice teachers, leaving the field uninformed about preservice teachers (Cutler & Graham, 2008). While some similarities can be documented between preservice and inservice teacher beliefs, educators and scholars should not assume direct transfer of findings between the two groups because preservice teachers likely have less fully-crystalized belief structures than teachers already in the field (Borg, 2003; Hutner & Markman, 2016). We argue that to affect change in K-12 writing instruction, preservice teachers' beliefs about writing and self-efficacy for writing should not be ignored.

Preservice teachers learn the skill of teaching writing from effective teacher models, practice with writing, and experience applying their writing knowledge, as emphasized by

Pajares (2003) and Bandura (1977). In fact, in their foundational work on effective writing instruction, Graham and Perin (2007) found that when teachers did not provide effective modeling of strategies in writing instruction, student achievement profoundly decreased ($d$ = -.61). The idea of effective modeling crosses into higher education when teacher educators are instructing preservice teachers (Kaufman, 2009). Preservice teachers often revert to teaching in the same ways they were taught in their K-12 classrooms because they do not fully grasp the connections between theory, research and practice from their teacher preparation courses (Ritter, 2012). The responsibility of elucidating these connections lies with teacher educators, who can enhance the effectiveness of preservice teachers by modeling practices suggested by theory. In addition to modeling, preservice teachers need exposure to writing and safe environments to explore their own writing abilities. Courses that allow preservice teachers opportunities to engage in writing, examine their own thinking (metacognition) about writing, and practice giving feedback on others' writing, help develop positive beliefs about writing (Morgan, 2010). However, even after certification, many teachers report that they are inadequately prepared to teach writing (Kiuhara, Graham, & Hawken, 2009).

Practicing writing improves writing. The frequency with which students practice writing develops more positive beliefs about the process and act of writing (Elbow, 2004; Silvia, 2007). In fact, preservice teachers who were given opportunities to write throughout the day showed more positive attitudes toward writing (Hall & Grisham-Brown, 2011). Yet, research also shows that preservice teachers are often granted limited opportunities to see effective models of writing instruction (Grisham & Wolsey, 2011). These pedagogical models should emphasize what teachers do with students and how teachers improve the writing abilities of their students. These features of teaching writing should be explicitly communicated to preservice teachers, not just

inferred (Grisham & Wolsey, 2011). In other words, preservice teachers need to simultaneously engage in activities from the perspective of a writer and from the perspective of a writing teacher (Martin & Dismuke, 2015).

Consistent with empirical findings, preservice teachers often self-report mentors, models, and support in their teacher education programs as contributing to their overall beliefs about teaching and sense of preparedness (Siwatu, 2011). In fact, Van Dinther, Dochy, and Segers (2011) found that 80% of intervention programs influenced students' self-efficacy beliefs. Of the variables influencing self-efficacy, mastery-based activities show the largest increase in self-efficacy (Van Dinther et al., 2011). Mastery activities require participants to actively engage in an activity, see effective models of the activity, and challenge previously held beliefs about the activity (Bandura, 2001). As such, a mastery activity improves one's skills in writing and those skills provide evidence that influences a person's belief system that they can achieve a specific level of performance.  Accordingly, a strong connection between instructional practices and self-efficacy also exists. From these research studies, preservice teachers' beliefs about writing are influenced by many factors, but primarily stem from specific interventions that include a focus both on skills *and* attention to students' attitudes and views toward writing.

Preservice teachers, who are shifting from students to teachers, develop beliefs about writing that may meaningfully impact their future students' outcomes and expectations related to writing (Zimmerman, Morgan, & Kidder-Brown, 2014). Writing researchers typically assume that preservice teachers must be good writers themselves to effectively teach writing (Morgan, 2010; Zimmerman, Morgan, & Kidder-Brown, 2014). Yet, what constructs are the "active ingredients" which underlie success as a writer and future success as a writing teacher?

**3. Validity Program for Measuring Self-Efficacy for Writing and Teaching Writing**

As Weigle (2013) conveys, test validation is "the process of articulating and seeking evidence for a series of inferential steps that are taken between a test performance and score interpretation and use" (p. 91). This definition aligns with Benson's (1998) *structural* piece of validation programs, and mirrors the work done by others when validating measures of writing affect (e.g., Author et al., 2018). We also use current research on writing motivation and survey development to approach measuring the specific construct of self-efficacy (e.g., Abdel, 2019; Ling et al., 2021; Wright et al., 2019).

Consulting the *Standards for Educational and Psychological Testing* (2014) published jointly by the American Educational Research Association (AERA), American Psychological Association (APA), and National Council on Measurement in Education (NCME), we followed an inferential program to create and determine evidence toward the validity and reliability of scores for the PTSWI. We specifically aimed to provide evidence of the scores for the particular demographics of preservice teachers, which are representative of many teacher education programs in the United States. In Table 1, we outline the standards for test design and development that we utilized, along with the inferential evidence we provide in our methods and analysis sections. The standards we use are designed for test specification and item development and review. Throughout our methods and results sections, we identify when we were focused on each standard of test design and development. In the following sections, we align these standards to our decision making and process to indicate the reliability and validity of scores produced by the PTSWI. We also discuss the usefulness of those scores to teacher educators.

[ Insert Table 1 here ]

## 4. Survey Development

From the research and theoretical foundations presented above, we created the PTSWI with three scales: (F1) self-efficacy for writing; (F2) self-efficacy for teaching writing elements; and (F3) self-efficacy for writing instruction.

### 4.1 Creating the PTSWI

In creating the PTSWI, we were guided by self-efficacy theory (Bandura, 1986, 2001) and prior research on writing instruction. In addition to extensively reviewing theoretical perspectives on writing, we located seven instruments that measure elements of writing or writing instruction either at the inservice teacher level and/or constructs tangentially related to self-efficacy (e.g., writing apprehension). Previous instruments have captured only select perspectives on writing (Cutler & Graham, 2008; Daly & Miller, 1975; Graham et al., 2001; Graham et al., 2002; Zimmerman & Bandura, 1994). Table 2 summarizes the purpose, instruments and results from studies conducted on writing beliefs and self-efficacy, which informed the present study. Together, this rich theoretical- and research-base is critical to fully exploring beliefs about writing, especially when considering preservice teachers (*Standard 4.0*). Using these studies and instruments, we developed a bank of questions, then reworded all items to be appropriate for preservice teachers (*Standard 4.6*). We omitted items that were not relevant to the three sub-constructs we aimed to explore and added missing items as needed (*Standard 4.7*).

[ Insert Table 2 here ]

After creating our initial items, we conducted a series of checks to ensure the questions were addressing the sub-constructs we intended (*Standards 4.6 & 4.7*). First, we asked two

faculty with expertise in writing research and self-efficacy research, but who were unattached to the project, to review the items (*Standard 4.12*). We utilized their feedback to omit, add, and revise items. Next, we conducted a small pilot of about 30 students (prior to the data collection described below). We administered the PTSWI and then engaged the students in a small focus group to provide feedback. Again, we used the responses and feedback to omit, add, and revise items. Finally, we created a third version of the survey and administered that to the two groups of students described.

**4.2 PTSWI Factors**

We designed the PTSWI to measure three self-efficacy sub-constructs: (F1) writing, (F2) teaching writing elements, and (F3) writing instruction. These three sub-constructs comprise the survey and measure *preservice teacher self-efficacy for writing*, *preservice teacher self-efficacy for writing instruction* and *preservice teacher self-efficacy for teaching writing elements.* These three sub-constructs represent the theory and research foundations we have presented thus far. Additionally, the three sub-constructs are distinct from each other because a preservice teacher may feel confident in her own writing but be unsure how to translate that skill to a young, potentially unmotivated, audience. The PTSWI captures these varying areas of self-efficacy and allows teacher educators to better understand how and why preservice teachers may feel efficacious or not. In the following sections, we describe each section of the PTSWI and provide the items as well as the source (scale or research basis) for each item. We also describe how we adapted items for our target population.

**4.2.1 Demographic Information.** The PTSWI includes basic demographic information (e.g., university identification number, gender, ethnicity, classification, certification area). Additionally, one qualitative question (e.g., *List the types of writing (either academic or*

*personal) you engaged in during the past week.*) seeks to better understand what tasks, processes, and products students view as writing. This question provides information about how preservice teachers conceptualize writing, which focuses on the multidimensionality of the writing construct.

**4.2.2 Self-Efficacy for Writing.** The second section of the PTSWI focuses on the preservice teachers' self-efficacy for writing. Table 3 shows the research-basis for each item and modifications from previously published measures. The modifications make the question appropriate for preservice teachers, rather than inservice teachers or K-12 students. Researcher-created items and relevant studies supporting those items' development are also documented.

Informed by sociocognitive theory (Bandura, 1986, 2001) and current research (Pajares, 2003; Pajares & Valiante, 2006), we entitled this sub-construct *preservice teacher self-efficacy for writing*, defined as the preservice teachers' belief that they can effectively accomplish writing tasks even if the tasks are difficult or challenging. Therefore, the PTSWI measures how efficacious preservice teachers are when considering their own writing outcomes. This sub-construct encompasses elements from writing context through sociocultural factors of writing, sociocognitive approaches such as master of writing skill, and self-efficacy (e.g., one must believe he or she can improve in writing quality). These elements of writing work in unison to help preservice teachers view themselves as accomplished writers.

[ Insert Table 3 here ]

**4.2.3 Self-Efficacy for Teaching Writing Elements.** *Preservice teacher self-efficacy for teaching writing elements* is the preservice teachers' belief that they can effectively teach specific elements of writing and the writing process. We derived the questions from writing orientations (Graham et al., 2001), writing self-efficacy measures (Graham et al., 2002;

Zimmerman & Bandura, 1994), and the 6+1 Traits Rubric (Coe, Hanita, Nishioka, & Smiley, 2011) to select our writing element criteria. This sub-construct differs from *preservice teachers' self-efficacy for writing instruction* by emphasizing specific skills the preservice teachers may be tasked with teaching.

In the third section, the PTSWI focuses on how well the preservice teachers felt their teacher preparation program equipped them to instruct certain writing components. Table 4 shows the research support for each item as well as which dimension of writing self-efficacy is measured. The 6+1 Traits rubric (nationally recognized; Coe, Hanita, Nishioka, & Smiley, 2011) contains elements of writing, which are the focus of instructional approaches assessed by current research (Cutler & Graham, 2008; Graham et al., 2002). Additionally, Bruning and associates (2013) describe three skillsets that compose writing self-efficacy: ideation, conventions, and self-regulation. Ideation is the creation of ideas, arguments, and content for writing. Conventions include the grammatical rules and stylistic features of writing. Self-regulation is the ability to monitor generation and editing of writing (Bruning et al., 2013). Though not all items were represented in Bruning and colleagues' survey, we applied the definitions to items as appropriate.

[ Insert Table 4 here ]

**4.2.4 Self-Efficacy for Writing Instruction.** Extrapolating from our previous definition, we defined *preservice teacher self-efficacy for writing instruction* as preservice teachers' belief in their abilities to effectively instruct students to improve students' overall writing achievement. This line of research suggests that student writing outcomes and teaching writing are separate constructs. In the PTSWI, we measure these two sub-constructs separately, while trying to anticipate their intersection. To teach writing effectively, we also pulled from theoretical lenses

of writing. Specifically, preservice teachers must understand how the context of the classroom influences their students and builds a community of learners (Graham, 2018). Additionally, preservice teachers need to consider how to teach various genres, purposes, and audiences while teaching specific writing skills (Graham et al., 2012; Graham et al., 2016). At the same time, motivation will contribute to preservice teachers' view of their ability to teach writing effectively.

This section of the PTSWI measures preservice teachers' self-efficacy for writing instruction. This section asks preservice teachers to adopt the perspective of a future inservice teacher to indicate the importance of writing instruction for K-12 students' achievement in class as well as what components of writing instruction should be emphasized. All items were researcher-created; however, the majority (see Table 5) were supported by research on inservice teachers, focusing on the types of instructional practices those teachers employ (Cutler & Graham, 2008) and their underlying beliefs, or orientations, about writing (Graham et al., 2002).

[ Insert Table 5 here ]

## 5. Methods

In the following sections, we describe the sample participants, administration procedures, and statistical analyses used to establish validity and reliability of the instrument. We also document initial results from the survey. Our research aims to answer the following research questions:

1) What is the internal factor structure of the PTSWI survey (targeting three sub-constructs of self-efficacy for writing, self-efficacy for teaching writing elements, and self-efficacy for writing instruction)?

2) What evidence of validity do scores from the PTSWI provide?

3) What evidence of reliability do scores from the PTSWI provide?

## 5.1 Participants

Two groups of participants were recruited to collect validity and reliability evidence for scores from the PTSWI (*Standard 4.9*)*.* The first group of participants, Sample A, were used for the principal components analysis. Sample A represents 209 preservice teachers enrolled in writing-intensive courses at a large research university in the southwest part of the United States. Writing-intensive courses were defined as content-based courses that included specific teaching of writing elements. Therefore, these preservice teachers were simultaneously learning teaching practices and writing, and to some degree, how to teach writing, though this was not the sole focus of any course. Demographic information for the participants is provided in Table 6. This sample is consistent with the state population of in-service teachers who are primarily White (85%) and female (85%).

The second group of participants, Sample B, were used for the confirmatory factor analysis sample. Sample B includes the 525 preservice teachers enrolled in writing-intensive courses at the same university, but surveyed in a different semester. Table 7 shows the participants' demographic information.

[ Insert Table 6 here ]

[ Insert Table 7 here ]

## 5.2 Instrument Procedures

We administered the PTSWI to preservice teachers during the first week of the semester-long writing-intensive courses to establish their self-efficacy for writing, teaching writing elements, and writing instruction. The survey took less than 20 minutes to complete, including time for an administrator from the research team to provide directions. Participants were given

access to an online version of the survey; however, they had the option to complete paper-and-pencil versions if they preferred or did not have access to an Internet-connected device in class.

Each survey item included a Likert-scale of "strongly disagree" to "strongly agree" with a forced choice selection. Because we administered the surveys through an online system, the scores were automatically converted to files for analysis and data reporting. Therefore, after administering the survey, the research team had immediate data on students' beliefs that could be provided to teacher educators.

## 5.3 Statistical Analyses

For the present study, we evaluated the effectiveness of the PTSWI by analyzing validity scores and reliability coefficients. Applying *Standard 4.11*, we compared these scores to guidelines for educational research as well as prior literature to determine the fidelity of our scores (i.e., Meyers, Gamst, & Guarino, 2013; Thompson, 2006). For validity, we first used principal components analysis (Thompson, 2004) to determine the number of factors naturally emerging from the survey (*Standard 4.10*). We also performed a scree plot analysis (Cattell, 1966), parallel analysis (Horn, 1965; O'Connor, 2000; Preacher, Zhang, Kim, & Mels, 2013), and higher-order factor analysis (Thompson, 2004) to show that the three factors correlated to one overarching construct. Next, we verified the factor-model with confirmatory factor analysis to determine the model goodness-of-fit. For reliability, we used Cronbach's alpha due to its prevalence in related literature (e.g., see Bruning et al., 2013; Meyers, Gamst, & Guarina, 2013).

## 6. Results

In the following sections, we outline our results by each statistical analysis.

## 6.1 Exploratory Factor Analysis

First, we used Sample A ($n = 209$) to conduct a principal components analysis with Promax rotation to determine the factor-model of the PTSWI (*Standard 4.8*). Our analysis was exploratory in that we did not specify the number of factors we expected. The principal components analysis resulted in seven factors with eigenvalue scores greater than one (see Table 8). However, the first three factors explained over 60% of the variance. For that reason, as well as theoretical support, we chose to retain the first three factors. We then restricted the principal components analysis to three factors and reported the resulting factor scores for the retained factors (see Table 8).

[ Insert Table 8 here ]

In Table 8, the bolded scores represent the component for which the item is best supported. Overall 52.26% of the total variance was accounted for by the three components model. This three-factor model is supported by Bandura's self-efficacy theory. Items 1 through 9 factored as *preservice teacher self-efficacy for writing*. Each item asks preservice teachers to rate their perceived ability to conduct writing tasks (e.g., Item 3: *I am confident in writing for a variety of audiences*). Items 10 through 21 factored as *preservice teachers' self-efficacy for teaching writing elements* as each item asks preservice teachers to rate their perceived ability to teach specific elements of writing in the future. Finally, Items 22 through 31 factored as *preservice teachers' self-efficacy for writing instruction*. Each of these items asks preservice teachers to rate their perceived ability to teach writing holistically in the future (e.g., *I feel adequately prepared to teach writing*).

**6.2 Scree Plot Analysis**

Next, we include a Scree plot analysis to indicate the number of factors, based on eigenvalue scores (*Standard 4.8*). According to Figure 1, Sample A ($n = 209$), started to level out between the third and fourth factor. From the fourth factor onward, little change or additional variance can be described by adding factors. Therefore, considering theoretical perspectives and the number of available factors, we chose to maintain three factors that are supported by theory and account for 52.26% of the overall variance.

[ Figure 1 here ]

**6.3 Parallel Analysis**

Continuing to use Sample A ($n = 209$), we performed a parallel analysis to provide further validity for the appropriate number of factors to retain(*Standard 4.8*). Table 9 provides the eigenvalues from the principal components analysis, which were each greater than one. The parallel analysis scores for each factor at the 95th percentile are also provided. From this table, we note that the first three factors from the principal components analysis have eigenvalues greater than the 95th percentile scores for the parallel analysis. This indicates the factors are significant and should be retained. The fourth factor and beyond show eigenvalues smaller than the parallel analysis percentile scores. These factors are non-significant and should not be retained.

Based on the results of the principal components analysis, scree plot analysis, and parallel analysis, we retain three factors: *self-efficacy for teaching writing elements, self-efficacy for writing,* and *self-efficacy for writing instruction*. These three factors were the focus for the higher-order factor analysis and confirmatory factor analysis.

[ Table 9 here ]

**6.4 Higher-Order Factor Analysis**

Believing that the three self-efficacy scales were highly correlated, we conducted a higher-order factor analysis (Gorsuch, 1983; Thompson, 2004). Higher-order factor analysis allows highly correlated factors to be aggregated based on their pattern coefficient scores (*Standard 4.8*). This analysis further shows that the sub-constructs are related and can be measured using one instrument. Two latent sub-constructs reveal the association between *self-efficacy for teaching writing elements*, *self-efficacy for writing instruction*, and *self-efficacy for writing* (see Table 9).

As detailed in Table 10, the three sub-constructs in the survey further factor into two latent sub-constructs. The *self-efficacy for writing* remains as a separate sub-construct, but the *self-efficacy for teaching writing elements* and *self-efficacy for writing instruction* form one additional latent sub-construct. Honoring the hierarchical structure of the analysis, and borrowing from Bloom's Taxonomy (1956), this third sub-construct represents *self-efficacy for teaching writing.* This factor combines the two teaching-focused factors of *preservice teacher self-efficacy for teaching writing elements* and *preservice teacher self-efficacy for writing instruction.* This higher order factors supports prior research indicating that future teachers should see themselves as writers (*preservice teacher self-efficacy for writing*) as well as competent teachers of writing (*preservice teacher self-efficacy for teaching writing*). We will discuss these factors more in the discussion. These two factors support the idea that future teachers must view themselves as confident, capable writers while also viewing themselves as confident, capable writing teachers in order to focus on teaching writing in their future classrooms.

[ Insert Table 10 here ]

**6.5 Confirmatory Factor Analysis**

Next, we conducted a confirmatory factor analysis with the three-component model (with higher-order factor) prescribed above to determine goodness of fit (*Standard 4.8*). Using Sample B ($n = 525$) we confirmed the model, and tested goodness of fit with the comparative fit index (CFI) and root-mean-square error of approximation (RMSEA). We utilized the guidelines outlined by educational researchers (Hu & Bentler, 1999; Meyers et al., 2013). Results for our model are synthesized in Table 11 (*Standard 4.10*).

The comparative fit index score surpasses the field identification as a good fit (greater than 0.95) (Hu & Bentler, 1999). The RMSEA score is approaching the acceptable range (below 0.05) (Meyers, Gamst, & Guarino, 2013). The analysis of the goodness of fit indicates that the three-factor model with 32 sub-constructs is an adequate model for the constructed survey (*Standard 4.11*).

[ Insert Table 11 here ]

**6.6 Reliability Estimates in the Current Study**

Reliability estimates for scores from the PTSWI are compared to the body of existing literature on writing self-efficacy and general teaching self-efficacy to determine the overall trustworthiness of the scores (Thompson, 2002). The scores are consistent with previously published literature on self-efficacy for writing (*Standard 4.11*). As seen from Table 12, the reliability coefficients are approaching the higher range of scores from the previous literature based on the self-efficacy for teaching writing elements ($\alpha = 0.94$), especially in the areas of "overall reliability" and "self-efficacy for writing instruction". The score for "self-efficacy for writing instruction" is within the acceptable range ($\alpha = 0.80 - 0.94$). The score for "self-efficacy

for writing" is relatively low, but is well within the range for teaching self-efficacy ($\alpha = 0.64$ - $0.87$) and is slightly below the typical range for writing ($\alpha = 0.80$ - $0.94$).

[ Insert Table 12 here ]

**6.7 Final Model**

Considering psychometric evidence in concert with prevalent theoretical framework, we present a model of preservice teachers' self-efficacy as a writing teacher. Figure 2 visualizes the complexity of these strands of research and theory that culminated in the factors. This figures models how these three research traditions, represented by the systematically intertwined large circles, relate to our three factors and one higher-order factor represented in the inner model.

[ Insert Figure 2 here ]

**6.8 Mean Scores on the PTSWI**

Table 13 shows the mean factor scores for all participants, as well as the standard deviation. Mean scores could have ranged from one (indicating low self-efficacy) to five (indicating high self-efficacy). This data indicates that overall, preservice teachers in the same felt least confident in their own writing abilities. They felt the highest levels of self-efficacy for teaching specific writing elements, such as organization, word choice, and punctuation. They felt moderate self-efficacy for writing instruction. The high standard deviation scores for both preservice teacher self-efficacy for teaching writing elements and preservice teacher self-efficacy for writing instruction indicate that the sample participants varied in their responses to these items. That likely indicates that preservice teachers felt more confident about some items and less confident for others.

Overall, these results suggest that preservice teachers may need more support in viewing themselves as writers and increasing their writing skills. Additionally, for validation purposes,

these results indicate that we did not receive homogenous responses from the sample, indicating that the PTSWI provides a range of scores.

[ Insert Table 13 here ]

## 7. Discussion

In the present study, we created and validated a tool to help teacher educators distinguish how preservice teacher develop self-efficacy beliefs about writing and writing instruction, along with which sub-constructs might be presenting preservice teachers with concerns about writing. This tool is informed by prior research in writing, theoretical perspectives of self-efficacy, and theoretical perspectives related to writing (context, genre, cognitive approaches, and motivation). In the following sections, we describe preservice teacher beliefs about writing, evidence of validity, and evidence of reliability documented by the PTSWI.

### 7.1 Evidence of Validity

Validity for scores on the PTSWI, as demonstrated by factor analysis, indicate that the items are effective for describing self-efficacy for teaching writing elements, and moderately effective for describing the self-efficacy for writing and self-efficacy for writing instruction. One consideration worth acknowledging is that the demographics of the sample are highly homogenous, over-representing students who are White and female. These percentages are representative of the current population of teachers in both the state studied and the United States in general. However, the homogeneity of responses could affect the validity and reliability coefficients, which are largely dependent on participant responses (Thompson & Vacha-Haase, 2012).

Additionally, the fit statistics for the PTSWI did not consistently correspond to the criteria of "good fit" as outlined by the field (Hu & Bentler, 1999; Meyers et al., 2013) although

they met the criteria for "adequate fit". However, it is important to note that such criteria are field dependent so it is critical to compare results to other, similar instruments. Yet, when we attempted to compare these scores with fit statistics from the field, we found that many researchers did not include fit statistics in their analyses. In fact, among the surveys we used to model and develop the PTSWI, only Bruning and colleagues (2013) reported these fit indices. This reveals a limitation in the field in which researchers are including factor analyses, but not fitting their data to theorized models to ensure they match the sub-constructs. While our fit statistics reveal "adequate" or "acceptable" fit of the model, these scores can only be compared with arbitrary, non-discipline specific benchmarks, thus limiting interpretation.

Finally, we found that the validity scores from the factor analysis showed some unexpected fluctuations, such as the exploratory yielding three strong factors but seven total factors while the scree plot analysis and parallel analysis retained three factors (*Standard 4.13*). Primarily, these fluctuations occurred with items that implicitly asked about students' orientation toward writing. This was a risk that we accepted when we decided to not include our own definition of writing during the survey administration because we did not want to influence responses. For example, if students view writing as a tool for learning, they will probably indicate agreement with the item *Writing helps me accomplish daily tasks (i.e., completing to-do lists, journaling, note-taking)*; however, if they view writing as a task involving the writing process, they might rate this item lower.

Therefore, consideration should be taken to identify varying definitions of writing and how those definitions influence student responses (Ling et al., 2021). We suggest that some of these differences in responses can be explained by acknowledging that students do not all define writing in the same way. While not the focus of this study, we did ask students to indicate what

types of writing they engaged with over the previous week, which indicated to some degree how they view and define writing. When we analyzed their responses, we found the majority of answers to the question about what types of writing they engaged with (about 85%) referred to writing for academic purposes (i.e., completing reflections or essays, responding to online discussion threads, and writing lesson plans). Only up to 25% of the responses indicated that writing was used for personal reasons (i.e., writing letters to family, texting, and writing poetry or short stories).

## 7.2 Evidence of Reliability

To evaluate the trustworthiness of the reliability scores (using Cronbach's alpha), we consulted prior literature. Several studies (Bruning et al., 2013; Graham et al., 2001; Graham & Perin, 2007; Tschannen-Moran, Hoy, & Hoy, 1998; Zimmerman & Bandura, 1994) have calculated reliability coefficients for scores from measures of self-efficacy, which allowed us to evaluate the consistency of these measures. Some of these measures are for self-efficacy for writing and some are for self-efficacy in general. This synthesis showed the appropriateness of our measures, despite the complexity of merging the two related yet distinct sub-constructs of self-efficacy for writing and self-efficacy for writing instruction.

Preservice teachers have varying definitions and opinions about writing, making the task of measuring self-efficacy for writing and writing instruction difficult. Despite these challenges, the reliability coefficients for the instrument ($\alpha = 0.71 - 0.93$) show consistency with the current, yet limited, research on self-efficacy for writing. Future research is needed to determine if the consistency of these scores remain with more diverse and larger samples across different time intervals.

The highest comparable reliability coefficients for self-regulation of writing, a subcomponent of self-efficacy, came from Zimmerman and Bandura (1994). These researchers calculated a high reliability coefficient ($\alpha = 0.94$). Moving to 2001, Graham and associates used a general measure of self-efficacy for teaching and had moderate to high reliability coefficients with their sample ($\alpha = 0.70 - 0.80$). These scores were consistent with overall measures of personal teaching efficacy ($\alpha = 0.75 - 0.87$) and teaching efficacy ($\alpha = 0.64 - 0.77$) (Tschannen-Moran et al., 1998). Finally, in a more recent evaluation of self-efficacy for writing, Bruning and associates (2013) measured three sub-constructs of self-efficacy for writing, ideation ($\alpha = 0.90$), conventions ($\alpha = 0.85$), and self-regulation ($\alpha = 0.88$).

The results for the *self-efficacy for writing instruction* sub-construct are especially noteworthy. This sub-construct is even less researched than *self-efficacy for writing* and is more challenging to measure. Ultimately, this is a measure of perception and prediction as the preservice teachers have not yet had their own classroom. However, these scores were within the field range ($\alpha = 0.80 - 0.94$) based on the self-efficacy for writing research. As this is mostly an unexplored sub-construct, our study serves as a starting point for future researchers hoping to analyze this sub-construct with diverse samples of preservice teachers. This sub-construct may emerge to be highly predictive of how preservice teachers incorporate writing instruction in their future classrooms, so more work is warranted in this area. We hypothesize that this sub-construct would logically be more predictive of preservice teachers' approach to teaching writing than their personal self-efficacy for writing

## 7.3 Theoretical Implications of this Study

Research shows that teachers with higher levels of self-efficacy for teaching have students with higher academic achievement (Tschannen-Moran & Johnson, 2011). Theoretically,

the present study provides a more detailed overview of some considerations for writing when developing the beliefs and skills of preservice teachers. Often in writing research, these theories are presented in mutually exclusive terms, rather than converging to better describe the multi-faceted processes of developing self-efficacy for writing and writing instruction. For example, some research focuses on the writing beliefs of future teachers in terms of how they feel and how they conceptualize their own writing skills (Morgan, 2010; Zimmerman et al., 2014), while other research focuses on how teachers feel about instructing writing and engaging students in writing tasks (Hall & Grisham-Brown, 2011; Grossman et al., 2009).

In writing research, two perspectives are often held in a competing fashion. From one perspective, research and theory state that teachers must be good writers in order to be effective writing teachers. From a second contrasting perspective, research and scholars indicate that teachers must be effective writing teachers, though do not necessarily have to view themselves as writers. Preservice teachers viewing themselves as writers is different from viewing themselves as writing teachers. This important distinction presents two competing research ideologies: (1) that preservice teachers must be good writers themselves to teach writing (Morgan, 2010; Zimmerman, Moragan, & Kidder-Brown, 2014); or (2) that preservice teachers do not need to be writers themselves, but rather, need to understand how to teach writing effectively (Grossman, Hammerness, & McDonald, 2009).

Current research posits that teachers must be writers to teach writing effectively. The PTSWI confirms a latent correlation between self-efficacy for writing and self-efficacy for writing instruction, contributing to the idea that preservice teachers who viewed themselves as writers also have positive feelings about teaching writing. While this finding lends evidence to the ideology of "good teachers of writing must be writers", one limitation, however, is that those

with high self-efficacy in one area are more likely to report high self-efficacy in another area (Tschannen-Moran & Woolfolk Hoy, 2001). Moreover, high self-efficacy does not innately lead to high achievement or quality of writing.

To our knowledge, no instrument combines these two perspectives specifically for preservice teachers. Moreover, from our statistical analyses, it is clear that the two sub-constructs are separate and both are important. While to date the prior literature has argued for one or the other – teachers should be themselves effective writers or should only view themselves as effective writing teachers – the validation results of our instrument suggests that both identities and perspectives are critical to developing competent writing teachers. Moreover, we argue that these two sub-constructs deserve time in teacher preparation so preservice teachers can develop their knowledge and skills before entering the classroom.

From a theoretical perspective, therefore, the present study provides new knowledge for the field. We present multiple factors that can be analyzed when understanding preservice teachers view of writing and writing instruction, while acknowledging that multiple belief systems contribute to preservice teachers' overall sense of self-efficacy for writing and writing instruction.

**7.4 Future Directions**

From this research, we bring attention to three directions for future research. First, we noted that the previously published surveys that we drew upon for the creation of our instrument, often do not report all model fit statistics. Researchers must be aware of the model fit of their results and include this information within their manuscripts. The inclusion of these analyses will further identify the strengths and limitations of tools for studying writing. According to the

American Educational Research Association's (AERA) standards for reporting research, these statistics should be reported when available (AERA, 2006).

The second area of future research includes using the PTSWI to better understand the construct of self-efficacy, specifically as it informs writing achievement. In this validation study, we do not emphasize achievement as a factor of teacher beliefs, but it is an area that can be explored further. Yet writing achievement/skills would likely interact with self-efficacy and teaching in multiple ways: higher skill levels may improve one's ability to teach writing; and higher skill levels may be positively associated with one's self-efficacy for writing as well as the teaching of writing.  One suggestion and unique use of the PTSWI is to combine it with a writing sample from each participant. With both pieces of evidence, preparation programs can address a long-time question associated with self-efficacy research – how do self-efficacy beliefs correlate with achievement? This critical information can help teacher preparation programs target instruction for their teacher candidates and show how their teacher candidates' knowledge improves during the program.

Finally, one goal of the current study was to better understand theoretical implications for developing teacher self-efficacy for writing and writing instruction. Through extensive research, we created an instrument that extends current theoretical understandings and combines theoretical perspectives into one instrument. However, we acknowledge that one instrument may not be able to include all theoretical perspectives, so future research should continue to modify and create addition instruments that can add to this research. The present study provides insights into the complexity of merging two distinct sub-constructs: self-efficacy for writing and self-efficacy for writing instruction. While reliability coefficients and validity scores show that the

PTSWI is effective in capturing these sub-constructs, more research is needed to further validate these results.

## 7.5 Limitations

Several limitations are present in the current study. First, as mentioned previously, the data were collected from a homogenous sample at a single university, limiting generalizability. Secondly, the scores from this instrument are simply a snapshot of how students perceive writing and writing instruction. To fully understand how these views change over time and how they influence K-12 students, we would administer the survey multiple times over longer periods of time. Ideally, a longitudinal study would follow preservice teachers into their careers to measure how their beliefs and practices are aligned with their beliefs as preservice teachers. Finally, moving forward, it is incomplete to consider self-efficacy without skill, so future work should coordinate these two aspects of writing in concert, and in particular, explore how the two sub-constructs interact.

## 8. Conclusions

Ideally the PTSWI can open conversations regarding the importance of self-efficacy for writing in preservice teacher preparation. Specifically, teacher education programs can utilize the PTSWI to identify strengths and weaknesses in their own preservice teacher writing preparation. The programs can see which sub-constructs preservice teachers have high self-efficacy for and which sub-constructs they feel need further development. Teacher educators can design writing instruction, research, and practice around what their individual students identify as areas of weakness. With this tool, especially in the online format, teacher preparation programs can receive immediate feedback on their teacher candidate levels of efficacy for writing and writing

instruction. Given early in the program or in a semester, teacher educators can then modify their program to best fit the needs of each group of students.

While research on preservice teacher beliefs about writing is sparse, teacher educators understand the value of cultivating positive beliefs about writing during teacher induction. To date, teacher educators have not had a tool that could assist with measuring preservice teacher self-efficacy for writing and writing instruction while providing information that could be useful in modifying curriculum or practical experience. With the present study, we have worked to fill this gap and developed a tool that can be provide such information. Potentially, this tool can help teacher educators make more informed decisions to inform their preservice teachers' development as writing teachers.

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Table 1.

Validity Program for PTSWI

| Standards for Test Design and Development | Inferential Evidence |
|---|---|
| *Standard 4.0: Tests and testing programs should be designed and developed in a way that supports the validity of interpretations of the test scores for their intended uses. Test developers and publishers should document steps taken during the design and development process to provide evidence of fairness, reliability, and validity for intended uses for individuals in the intended examinee population.* | • Review of theory (see above)<br>• Review of prior empirical research (see above)<br>• Creation of database of items from previous studies, then modified for current purposes<br>• Series of pilot testing |
| *Standard 4.6: When appropriate to documenting the validity of test score interpretations of intended uses, relevant experts external to the testing program should review the test specifications to evaluate their appropriateness for intended uses of the test scores and fairness for intended test takers. The purpose of the review, the process by which the review is conducted, and the results of the review should be documented. The qualifications, characteristics of expert judges should also be documented.* | • Expert review of items<br>• Creation of database of items from previous studies, then modified for current purposes |
| *Standard 4.7: The procedures used to develop, review, and try out items and to select from the item pool should be documented.* | • Item selection process<br>• Pilot testing procedures |
| *4.8: The test review process should include empirical analyses and/or the use of expert judges to review items and scoring criteria.* | • Factor analysis of pilot study data<br>• SCREE plot analysis<br>• Parallel analysis<br>• Higher-order factor analysis<br>• Confirmatory factor analysis |
| *4.9: When item or test form tryouts are conducted, the procedures used to select the sample(s) of test takers as well as the resulting characteristics of the sample(s) should be documented. The sample(s) should be as representative as possible of the population(s) for which the test is intended.* | • Sample demographics |
| *4.10: When a test developer evaluates the psychometric properties of items, the model used for that purpose should be documented. The sample* | • Model description<br>• Model specifications |

| | |
|---|---|
| *used for estimating item properties should be described and should be of adequate size and diversity for the procedure. The process by which items are screened and the data used for screening, such as item difficulty, item discrimination, or differential item functioning (DIF) for major examinee groups, should asl obe doucmented. When model-based methods are used to estimate item parameters in test development, the item response model, estimation procedures, and evidence of model fit should be documented.* | |
| *Standard 4.11: Test developers should conduct cross-validation studies when items or tests are selected primarily on the basis of empirical relationships rather than the basis of content or theoretical considerations. The extent to which the different studies show consistent results should be documented.* | ● Cross-validation across prior research studies |
| *4.12: Test developers should document the extent to which the content domain of a test represents the domain defined in the test specifications.* | ● Content validity |
| *4.13: When credible evidence indicates that irrelevant variance could affect scores from the test, then to the extent feasible, the test developer should investigate sources of irrelevant variance. Where possible, such sources of irrelevant variance should be removed or reduced by the test developers.* | ● Discussion of inconsistent items |

Table 2.

*Purpose, Instrument, and Results of Studies Conducted on Writing Beliefs and Self-Efficacy*

| Study | Purpose | Instrument | Results |
|---|---|---|---|
| Bruning et al., 2013 | To determine a three-factor model, consisting of ideation, self-regulation, and conventions, for measuring writing self-efficacy with middle and high school students | *Self-Efficacy for Writing Scale (SEWS)* | 1. The two studies presented establish a foundation for multifactorial models of writing self-efficacy.<br><br>2. Middle and high school students responded similarly to items on the survey, indicating that self-efficacy beliefs are relatively stable over time. |
| Daly & Miller, 1975 | To determine factors influencing college students' writing apprehension using an empirically-based, standardized instrument | Unnamed, writing apprehension | 1. Scores for the instrument were valid and reliable.<br><br>2. Writing apprehension was measured by focusing on different types of writing and interactions with peers and teachers. |
| Gibson & Dembo, 1984 | To determine how dimensions of self-efficacy relate to Bandura's theory and analyze patterns in teaching behaviors of high and low efficacy teachers | *Teacher Efficacy Scale* | 1. A two-factor model of general teaching and personal teaching self-efficacy emerged.<br><br>2. Differences in academic focus, grouping methods, and feedback patterns exist between high and low efficacy teachers. |
| Graham et al., 2002 | To develop and validate an instrument measuring teachers' orientations for writing and beliefs about writing | *Writing Orientations Scale* | 1. Scores for the *Writing Orientations Scale* were valid and reliable.<br><br>2. 99% of participants valued explicit writing instruction and 73% valued natural learning, |

| | | | showing that most teachers see writing as an integrative approach. |
| | | | |
| | | | 3. Only 39% of primary-grade teachers emphasized correctness in teaching writing to students. |
| Harris et al., 2006 | To examine the effectiveness of Self-Regulated Strategy Development for young, struggling, urban students | *Self-Regulated Strategy Development (SRSD)* – instructional practice, not instrument | 1. Using SRSD, students developed more positive beliefs about writing and implementing writing.<br><br>2. SRSD increased students' knowledge of writing. |
| Zimmerman & Bandura, 1994 | To determine how self-regulation skills in writing influence course grades and self-efficacy | 1. *Writing Self-Regulatory Efficacy Scale*<br><br>2. *Self-Efficacy for Academic Achievement* | 1. The extent to which students perceived they could self-regulate during the writing process influenced their self-efficacy for writing and overall course grade. |
| Zimmerman, Morgan, & Kidder-Brown, 2014 | To determine the beliefs of preservice teachers in a writing methods course for teaching writing | Qualitative reflections about writing and teaching writing | 1. Both conceptual and pedagogical knowledge for writing should be developed through writing methods courses.<br><br>2. Increased exposure to writing results in more positive beliefs about writing and a greater sense of self as a writing teacher.<br><br>3. Collaborations among preservice teachers helped scaffold their understanding of writing instruction. |

Table 3.

Self-efficacy for writing - item development

| Item | Current research support for researcher-created item |
|---|---|
| 1. I can self-monitor during the writing process to improve the quality of my writing. | Researcher-created, from Bruning et al., 2013 |
| 2. The majority of time I spend writing is for enjoyment. | Adapted from Daly and Miller, 1975 |
| 3. I am confident in writing for a variety of audiences. | Adapted from Zimmerman and Bandura, 1994 |
| 4. I feel confident sharing my writing with peers. | Adapted from Zimmerman and Bandura, 1994 |
| 5. Writing helps me accomplish daily tasks (i.e., completing to-do lists, journaling, note-taking). | Researcher-created, from Bruning et al., 2013 |
| 6. Overall, I have positive feelings toward writing. | Adapted from Daly and Miller, 1975 |
| 7. I feel confident in my overall writing abilities. | Adapted from Daly and Miller, 1975 |
| 8. Writing is a challenging task for me. | Adapted from Daly and Miller, 1975 |
| 9. I am confident in writing for multiple genres (i.e., persuasion, nonfiction, narration). | Adapted from Zimmerman and Bandura, 1994 |
| 10. In my preservice teacher preparation coursework, I saw effective modeling of writing assessment. | Adapted from Graham et al., 2001 |

Table 4.

Self-efficacy for teaching writing elements

| Item | Current research support for researcher-created item | Dimension of Writing Self-Efficacy from Bruning et al., 2013 |
| --- | --- | --- |
| 11. Voice (i.e., presence of the author in the text, tone) | 6+1 Rubric; Graham et al., 2002; WAP Rubric | Ideation |
| 12. Organization of Ideas | 6+1 Rubric; Cutler & Graham, 2008; Graham et al., 2002; WAP Rubric | Ideation |
| 13. Clarity of Thought | Graham et al., 2002; WAP Rubric | Ideation |
| 14. Cohesiveness | 6+1 Rubric; Graham et al., 2002; WAP Rubric | Ideation |
| 15. Grammatical Conventions (i.e., passive voice, punctuation, capitalization) | 6+1 Rubric; Cutler & Graham, 2008; Graham et al., 2002; WAP Rubric | Conventions |
| 16. Spelling | Cutler & Graham, 2008; Graham et al., 2002; WAP Rubric | Conventions |
| 17. Word Choice | 6+1 Rubric; Graham et al., 2002; WAP Rubric | Ideation |
| 18. Syntax (i.e., sentence structures) | 6+1 Rubric; Graham et al., 2002; WAP Rubric | Conventions |
| 19. Editing and Revising | Cutler & Graham, 2008; Graham et al., 2002 | Conventions |
| 20. Paragraph Structure (i.e., organization of key ideas, inclusion of transitions) | Cutler & Graham, 2008; Graham et al., 2002; WAP Rubric | Ideation |

| 21. Overall Quality | Cutler & Graham, 2008; Graham et al., 2002; 6+1 Rubric | Self-Regulation |

Table 5.

Self-efficacy for writing instruction - item development

| Item | Current research support for researcher-created item |
| --- | --- |
| 22. Writing is an important skill to teach to students. | Graham et al., 2002 |
| 23. Writing instruction should be integrated into daily classroom instruction. | Graham et al., 2002 |
| 24. Writing is an important skill for teaching my certification area. | Graham et al., 2002 |
| 25. When teaching writing, I feel comfortable implementing state standards focused on writing. | Bruning et al., 2013 (self-regulation) |
| 26. Effective teachers must be proficient at writing. | Graham et al., 2002 |
| 27. I feel adequately prepared to teach writing. | Cutler & Graham, 2008 |
| 28. Teachers who enjoy writing can more effectively teach writing. | Cutler & Graham, 2008 |
| 29. The writing process is challenging to teach. | Cutler & Graham, 2008 |
| 30. Providing consistent assessment of writing is important to developing writing confidence in students. | Graham et al., 2002 |
| 31. Writing is an effective way to engage students. | Cutler & Graham, 2008; Graham et al., 2002 |
| 32. When assigning writing activities, I feel it is important to provide students with a specific topic on which to write. | Cutler & Graham, 2008; Graham et al., 2002 |

Table 6.

*Demographic information (n = 209) for Sample A*

|  | *n* | percentage |
|---|---|---|
| **Classification** | | |
| Freshman | 2 | .9% |
| Sophomore | 61 | 26.1% |
| Junior | 140 | 59.8% |
| Senior | 29 | 12.4% |
| Graduate | 1 | .4% |
| **Ethnicity** | | |
| African American | 2 | .9% |
| Asian | 2 | .9% |
| Hispanic | 26 | 11.1% |
| White | 198 | 84.6% |
| Other | 3 | 1.3% |
| **Certification Area** | | |
| EC-6 | 113 | 48.3% |
| 4-8 | 89 | 38% |
| 8-12 | 16 | 6.8% |
| **Frequency of Writing** | | |
| daily | 70 | 29.9% |
| 3-5 per week | 86 | 36.8% |
| 1-2 per week | 64 | 27.4% |
| less than 1 per week | 10 | 4.3% |
| Never | 3 | 1.3% |

Table 7.

*Demographic information (n = 525) for Sample B*

|  | n | percentage |
|---|---|---|
| **Classification** | | |
| Freshman | 6 | 1.1% |
| Sophomore | 128 | 24.4% |
| Junior | 328 | 62.5% |
| Senior | 63 | 12.0% |
| Graduate | 0 | 0.0% |
| **Ethnicity** | | |
| African American | 7 | 1.3% |
| Asian | 15 | 2.9% |
| Hispanic | 39 | 7.4% |
| White | 460 | 87.6% |
| Other | 4 | .8% |
| **Certification Area** | | |
| EC-6 | 328 | 62.5% |
| 4-8 | 161 | 30.7% |
| 8-12 | 14 | 2.7% |
| **Frequency of Writing** | | |
| daily | 120 | 22.9% |
| 3-5 per week | 153 | 29.1% |
| 1-2 per week | 188 | 35.8% |
| less than 1 per week | 58 | 11.0% |
| Never | 6 | 1.1% |

Table 8.

*Factor scores for three components on PTSWI (n = 209)*

| Item | Factor loading | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| **Factor 1: Preservice Teachers' Self-efficacy for Writing** | | | |
| 1. I can self-monitor during the writing process to improve the quality of my writing. | **.562** | .017 | .013 |
| 2. The majority of time I spend writing is for enjoyment. | **.528** | .124 | .017 |
| 3. I am confident in writing for a variety of audiences. | **.830** | .065 | .050 |
| 4. I feel confident sharing my writing with peers. | **.731** | .046 | .042 |
| 5. Writing helps me accomplish daily tasks (i.e., completing to-do lists, journaling, note-taking). | **.249** | .190 | .210 |
| 6. Overall, I have positive feelings toward writing. | **.760** | .005 | .062 |
| 7. I feel confident in my overall writing abilities. | **.900** | .064 | .106 |
| 8. Writing is a challenging task for me. | **.866** | .151 | .108 |
| 9. I am confident in writing for multiple genres (i.e., persuasion, nonfiction, narration). | **.715** | .017 | .003 |
| **Factor 2: Preservice Teachers' Self-efficacy for Teaching Writing Elements** | | | |
| 10. In my preservice teacher preparation coursework, I saw effective modeling of writing assessment. | .057 | **.477** | .132 |
| 11. I feel prepared to teach - Voice (i.e., presence of the author in the text, tone) | .057 | **.738** | .039 |
| 12. I feel prepared to teach - Organization of Ideas | .039 | **.816** | .128 |
| 13. I feel prepared to teach - Clarity of Thought | .008 | **.835** | .114 |
| 14. I feel prepared to teach - Cohesiveness | .044 | **.769** | .021 |
| 15. I feel prepared to teach - Grammatical Conventions (i.e., passive voice, punctuation, capitalization) | .090 | **.721** | .137 |
| 16. I feel prepared to teach - Spelling | .019 | **.710** | .046 |

| | | | |
|---|---|---|---|
| 17. I feel prepared to teach - Word Choice | .049 | **.746** | .020 |
| 18. I feel prepared to teach - Syntax (i.e., sentence structures) | .000 | **.799** | .024 |
| 19. I feel prepared to teach - Editing and Revising | .088 | **.799** | .075 |
| 20. I feel prepared to teach - Paragraph Structure (i.e., organization of key ideas, inclusion of transitions) | .003 | **.816** | .006 |
| 21. I feel prepared to teach - Overall Quality | .044 | **.852** | .005 |
| Factor 3: Preservice Teachers' Self-efficacy for Writing Instruction | | | |
| 22. Writing is an important skill to teach to students. | .140 | .041 | **.844** |
| 23. Writing instruction should be integrated into daily classroom instruction. | .050 | .005 | **.816** |
| 24. Writing is an important skill for teaching my certification area. | .055 | .030 | **.718** |
| 25. When teaching writing, I feel comfortable implementing state standards focused on writing. | .172 | .202 | **.433** |
| 26. Effective teachers must be proficient at writing. | .110 | .065 | **.751** |
| 27. I feel adequately prepared to teach writing. | .301 | .170 | **.483** |
| 28. Teachers who enjoy writing can more effectively teach writing. | .016 | .050 | **.645** |
| 29. The writing process is challenging to teach. | .124 | .317 | **.499** |
| 30. Providing consistent assessment of writing is important to developing writing confidence in students. | .012 | .142 | **.707** |
| 31. Writing is an effective way to engage students. | .002 | .017 | **.706** |
| 32. When assigning writing activities, I feel it is important to provide students with a specific topic on which to write. | .182 | .033 | **.339** |
| $R^2 = 52.361\%$ | 29.960% | 12.844% | 9.557% |

Table 9.

*Parallel analysis results for eigenvalues greater than one at the 95th percentile (n = 209)*

| Component | Principal Components Analysis Eigenvalue | Parallel Analysis (95th Percentile) |
|---|---|---|
| 1 | 9.587 | 1.863 |
| 2 | 4.110 | 1.747 |
| 3 | 3.061 | 1.641 |
| 4 | 1.279 | 1.575 |
| 5 | 1.130 | 1.496 |
| 6 | 1.043 | 1.433 |
| 7 | 1.011 | 1.387 |

Table 10.

*Higher-order factor pattern coefficient matrix*

| First-Order Factor | Pattern Coefficient ($A$) | $h^2$ |
|---|---|---|
| Preservice Teachers' Self-efficacy for Writing | .121 | .015 |
| Preservice Teachers' Self-efficacy for Teaching Writing Elements | .870 | .758 |
| Preservice Teachers' Self-efficacy for Writing Instruction | .863 | .744 |

Table 11.

*Goodness of fit statistics from confirmatory factor analysis (n = 525)*

| Goodness of Fit statistic | Results from the Present Study | Guidelines from Educational Researchers (Meyers, Gamst, & Guarina, 2013) |
|---|---|---|
| CFI | 0.817 | Good fit = greater that 0.95<br><br>Adequate fit = between 0.80 and 0.89 |
| RMSEA | 0.077 | Good fit = less than 0.05<br><br>Acceptable fit = less than 0.08 |

Table 12.

*Reliability estimates for PTSWI (n = 209)*

| | *n* items | Cronbach's α | Comparisons to similar published estimates | |
| --- | --- | --- | --- | --- |
| | | | Writing Self-Efficacy | General Teaching Self-Efficacy |
| Overall reliability | 32 | 0.892 | Within | Greater |
| Self-efficacy for Writing | 10 | 0.707 | Lower | Within |
| Self-efficacy for Teaching Writing Elements | 11 | 0.930 | Within | Greater |
| Self-efficacy for Writing Instruction | 11 | 0.832 | Within | Within |

*Note:* Reliability estimates in the field of Writing Self-Efficacy range from α = 0.80 - 0.94. Reliability estimates in the field of General Teaching Self Efficacy range from α = 0.64 - 0.87.

Table 13.

*Preservice teacher mean score by factor*

| Factor | Mean Score | Standard Deviation |
| --- | --- | --- |
| *(F1) Preservice Teacher Self-Efficacy for Writing* | 2.43 | 0.25 |
| *(F2) Preservice Teacher Self-Efficacy for Teaching Writing Elements* | 4.07 | 0.68 |
| *(F3) Preservice Teacher Self-Efficacy for Writing Instruction* | 3.48 | 0.56 |